Doctoral Courses

April (Spring) 2025 Admission

Akita University
Graduate School of Engineering Science
Doctoral Courses
Application Guidelines
【Additional Application】

[Including Special Entrance Examination for Working People and Special Entrance Examination for International Students]

Admission Schedule

Event		Date
Prior Screening of Application Eligibility (applicable applicants only)	General Entrance Examination	October 21 - 25, 2024
	Special Entrance Examination for Working People	
	Special Entrance Examination for International Students	
Application Period	General Entrance Examination	November 25 - 29, 2024
	Special Entrance Examination for Working People	
	Special Entrance Examination for International Students	
Examination Date	General Entrance Examination	December 19, 2024
	Special Entrance Examination for Working People	
	Special Entrance Examination for International Students	
Announcement of Results	General Entrance Examination	January 14, 2025
	Special Entrance Examination for Working People	
	Special Entrance Examination for International Students	

October 2024

Akita University

Admission Policy

◆ Image of Persons to Nurture

The Graduate School of Engineering Science aims to educate individuals who can systematically master a body of highly specialized knowledge and technology from first principles, and who can contribute to the vitality of local communities and the sustainable development of Japan with flexibility, an international perspective, and a strong sense of ethics.

● Kind of Persons Sought for

We are looking for new students who are motivated to create new things based on expertise in science and engineering, who are driven to contribute to the development of local communities facing various issues, and who want to use their academic learning to help find solutions to the problems facing all of humanity. We will make flexible efforts to enable working people to study while they work and will create a global environment that welcomes international students from around the world in order to actively embrace students with diverse backgrounds and goals.

[Doctoral Courses]

Our doctoral program accepts students who wish to cultivate the ability to develop expertise and conduct independent research, a broad perspective and flexibility, and the ability to look across and synthesize various fields of science and technology to create innovations needed by society and industry, and to play a leading role in local and international society.

● Basic Policy for Selection of Students

[General Entrance Examination] Screening for admission will be based on the combined results of an oral examination (regarding the applicant's master's thesis, subjects related to the desired field of study, research plan, etc.) and a document review.

[Special Entrance Examination for Working People] Screening for admission will be based on the combined results of an oral examination (regarding the applicant's master's thesis, research achievement record, research plan, etc.) and a document review.

[Special Entrance Examination for International Students] Screening for admission will be based on the combined results of an oral examination (regarding the applicant's master's thesis, subjects related to the desired field of study, research achievement record, research plan, etc.) and a document review.

Confidentiality of Applicant Information

The personal information of applicants obtained from the submitted documents and entrance examinations is used by Akita University solely for the following purposes:

[Purposes]

- ○ The information is used for matters related to selecting successful applicants (including related matters such as statistical processing).
- ○ In the case of students who have completed admission procedures, the information is used for post-admission enrollment management, academic guidance, matters related to student support, and matters related to the collection of tuition fees.

Table of Contents

Forms designated by the Graduate School (included in these Guidelines)

- Application for Admission, Examination Admission Slip, and Photo ID Card
- Abstract of Master's Thesis (No. 1 and No. 2)
- Research Plan
- Permission to Take Examination and Consent to Study (for Special Entrance Examination for Working People)
- Application Permission (for those currently enrolled in another graduate school doctoral program)
- Record of Academic Achievement (No. 1 and No. 2) (for Special Entrance Examination for Working People and Special Entrance Examination for International Students)
- Pre-evaluation Request for Application Qualification
- Academic Record for Approval of Application Qualification
- Prior Consultation Form for Applicants Who Need Consideration in Taking the Examination and Studying
- Return Contact Label Slip

Contact for inquiries:

Admissions Office, Akita University
1-1, Tegata Gakuen-machi, Akita-shi, 010-8502, Japan
Tel: +81-18-889-2313

Application Guidelines for the Doctoral Courses of the Graduate School of Engineering Science (Additional Application)

1. Admission Numbers

Integrated Engineering Science Major	Admission Numbers
Field	a few
Life Science Field	
Materials Science Field	
Mathematical Science and Electrical-Electronic-Computer Engineering Field	
Systems Design Engineering Field	

[Remarks 1] If you have any questions or concerns about the educational system in the field of education/research you wish to pursue, or about the faculty you wish to have as your advisor, describe relevant items such as

- the area(s) of education and research of interest and
- the name(s) of faculty member(s) you wish to have as your advisor(s),

and contact us at the address below:

Admissions Office, Akita University　nyushi@jimu.akita-u.ac.jp

2. Application Eligibility

Applicants seeking admission must meet any one of the following requirements.

(1) Persons who have a master's degree or a degree equivalent to a professional degree, or those who expect to obtain such a degree by March 2025.

(2) Persons who have received a degree equivalent to a master's degree in a foreign country or expect to receive such a degree by March 2025.

(3) Persons who have completed correspondence courses offered by a foreign school while residing in Japan and have received a degree equivalent to a master's degree, or those who except to receive such a degree by March 2025.

(4) Persons who have completed a course of study at a foreign school designated as equivalent to a foreign graduate school (a graduate-school-equivalent foreign university in Japan designated by the Minister of Education, Culture, Sports, Science and Technology) and have been awarded a master's degree or a degree equivalent to a professional degree.

(5) Persons designated by the Minister of Education, Culture, Sports, Science and Technology (Ministry of Education Public Notice No. 118 of 1989).

(6) Persons recognized by the Graduate School, on the basis of an individualized screening for admission, as having academic ability at or above the level of a master's degree and who will be at least 24 years of age by March 31, 2025.

[Note] If you wish to apply according to (5) or (6) above, you will need to have your application eligibility certified prior to the application procedures. Refer to "Approval of the Application Eligibility Requirements (5) and (6)" on page 11.

3. Categories of Applicant Evaluation Method

(1) General Entrance Examination

Persons who can take the General Entrance Examination are other than those described in (2) and (3) below.

(2) Special Entrance Examination for Working People

Persons who are eligible for taking the Special Entrance Examination for Working People must be researchers or engineers who are employed at research institutes, educational institutions, government offices, companies, and the like, and who will continue to be so after admission, and who have received a permission to take the examination from their department head or equivalent.

(3) Special Entrance Examination for International Students

Persons who are eligible for taking the Special Entrance Examination for International Students must be non-Japanese nationals who have a resident status designated as "college student" under the Immigration Control and Refugee Recognition Act, or who are able to obtain this status at the time of entry to the University (the resident status will be "college student" upon entry into the University). However, if any of the following applies to you, you must take the General Entrance Examination and cannot apply for the Special Entrance Examination for International Students.

- Persons who have graduated from a Japanese university.
- Persons who have completed or are expected to complete a master's program at a graduate school in Japan.

4. Application Period and Mailing Address

(1) Application Period

From November 25, 2024 to no later than November 29, 2024

Note 1) If brought in person, application documents will be accepted between 9:00 a.m. and 4:00 p.m. (Japan time), except on Saturdays, Sundays, and national holidays.

Note 2) If mailed, application documents must be sent by **simplified registration mail ("kan'i kakitome" or international mail),** with **"Application for Admission to Doctor's Program, Graduate School of Engineering Science" written in red** on the front side of the envelope. The mail must reach the Admissions Office **no later than 4:00 p.m. (Japan time) on November 29.**

Note 3) For those who apply according to the eligibility requirement (5) or (6), refer to page 11.

(2) Mailing Address

Admissions Office, Akita University
1-1, Tegata Gakuen-machi, Akita-shi, 010-8502, Japan
Tel: +81-18-889-2313

5. Application Procedures

(1) Application Documents to be Submitted

- General Entrance Examination

Documents to be Submitted	Points to Note
Application for Admission; Examination Admission Slip; Photo ID Card	Fill in your details on the form designated by the Graduate School (included in these Guidelines). A frontal-view photograph of the applicant's face, without a hat, 4.5 cm x 3.5 cm in size and taken within three months prior to the application, must be pasted in the designated area.
Certificate of Completion of Final Education (expected) or a Certificate of Graduation	A certificate of completion of the master's program (expected) prepared by the president of the school or the dean of the graduate school attended. Alternatively, a certificate of graduation prepared by the president of the school or the dean of the faculty attended. **Applicants who are expected to complete the Master's Program of the Graduate School of Engineering Science, Akita University by March 2025 are not required to submit the certificate.**
Transcript of Final Education	Must be prepared by the president of the school, the dean of the graduate school, or the dean of the faculty attended, and be sealed in an envelope. **Applicants who are expected to complete the Master's Program of the Graduate School of Engineering Science, Akita University by March 2025 are not required to submit the certificate.**
Abstract of Master's Thesis	Write an abstract of up to 500 words (in English) on the form designated by the Graduate School (included in these Guidelines). However, those who are expected to complete a master's program should submit the subject of their master's thesis and a summary of their research progress. In addition, attach printed copies of any relevant academic papers, academic lectures, patents, etc. (Not required for those who apply according to the eligibility requirement (5) or (6))
Research Plan	Write a research plan of about 300 words (in English) on the form designated by the Graduate School (included in these Guidelines) about the theme or field in which you wish to conduct research and the purpose and concept of your research in consultation with the faculty member you wish to have as an advisor.

Evaluation Fee Form to Attach the Proof of Evaluation Fee Payment	The evaluation fee is 30,000 yen. Remittance Period: November 11, 2024 - November 29, 2024 by 4:00p.m. (Japan time) How to make a payment: ・At the below, first enter your payment amount and country of origin to initiate your payment booking. [http://akita-u.flywire.com] ・Follow instructions to send payment funds to Flywire. For debit/credit card payments, enter your card details online to complete your payment in your home currency. (Additional local payment options may be available depending on the country you are paying from.) ・Receive text and e-mail status updates each step of the way, including a confirmation when your payment has been delivered to your institution. If you have created a Flywire account, then you are also able to track your payment any time by logging into your account. Flywire Customer Support Information (24hrs): E-mail: support@flywire.com Web: flywire.com/help Notes: i) After remitting the evaluation fee, send an e-mail notifying the Admissions Office as soon as possible. [E-mail : nyushi@jimu.akita-u.ac.jp] ii) If the evaluation fee received does not meet the required amount of 30,000 yen, the application procedure will be considered incomplete, and the application will not be accepted. The Evaluation Fee will be returned to the applicant, but the remittance fee will be withheld. iii) The Evaluation Fee will not be refunded for any reason after the application documents have been received. The Evaluation Fee is non-refundable in the case of disqualification or withdrawal of entrance by the applicant. iv) In case of remitting the evaluation fee from within Japan, please e-mail the address of Admissions Office before remitting the fee. Admissions Office will give instructions to you. Please don't remit the fee before receiving instructions. This payment is not required for those who will complete the Master's Program of Akita University Graduate School in March 2025 and will continue to enter the Doctor's Program .

Other	(1) Applicants who are currently enrolled in a doctoral program at another graduate school must attach a Permission to Take Examination (included in these Guidelines) from the dean of the graduate school in which they are enrolled. (2) If you do not have Japanese nationality, submit either a certificate of residence (Juminhyo) indicating your resident status issued by the mayor of your residing municipality, or a copy of your passport.
Label Slip	Fill in your details on the form designated by the Graduate School (included in these Guidelines).

[Note] Applicants who are permitted to apply on the basis of the application eligibility requirement (5) or (6) are exempt from submitting a graduation or completion certificate for the final education, but must submit a transcript prepared and sealed by the principal of the most recent school attended.

- Special Entrance Examination for Working People

In addition to the application documents specified in the General Entrance Examination section on page 4-6 of these Guidelines, the following documents must also be submitted.

Documents to be Submitted	Points to Note
Research Achievement Record	Fill out the form designated by the Graduate School (included in these Guidelines), and enter the contents of your work, published books, academic papers, academic lectures, patents, utility models, your activities in academia and society, etc.
Permission to Take Examination and Consent to Study	Attach a Permission to Take Examination and a Consent to Study (included in these Guidelines) issued by the head of the department where you work or an equivalent person.

- Special Entrance Examination for International Students

In addition to the application documents specified in the General Entrance Examination section on page 4-6 of these Guidelines, the following documents must also be submitted.

Documents to be Submitted	Points to Note
Research Achievement Record	Fill out the form designated by the Graduate School (included in these Guidelines), and enter the contents of your published books, academic papers, academic lectures, patents, utility models, your activities in academia and society, etc.
Transcript	Submit a transcript or equivalent.

(2) Precautions for submitting documents

i) Applications will not be accepted unless all documents required are fully and accurately completed.
ii) Once submitted, documents will not be returned to applicants for any reason.
iii) Applicants are not allowed to change the desired field, etc. after the submission of application.
iv) If the Contact Address entered in the application form changes after submission, the Admissions Office must be promptly notified of such change.
v) When preparing forms designated by the Graduate School, word processing software or the like may be used.
vi) If any certificate is written in other than Japanese or English, attach the Japanese translation. Note, however, that the applicant's own translation will not be accepted.

6. Applicant Evaluation Method

(1) Description of applicant evaluation method

Evaluation will be made based on the results of oral examination and document review.

(2) Description of oral examination

i) The oral examination for the General Entrance Examination will cover the contents of the applicant's master's thesis, subjects related to the desired field of study, research plan, etc.

ii) The oral examination of the Special Entrance Examination for Working People will cover the contents of the applicant's master's thesis, research achievement record, research plan, etc.

iii) The oral examination for the Special Entrance Examination for International Students will cover the contents of the applicant's master's thesis, subjects related to the desired field of study, research achievement record, research plan, etc.

(3) Academic ability test (interview)

i) Test date

Date	Test category
December 19, 2024	Oral examination

We will notify you separately of the place and starting time of your oral examination.

If you have not received your Examination Admission Slip by December 11, contact the Admissions Office of Akita University immediately.

ii) Examination site:

Graduate School of Engineering Science, Akita University
1-1, Tegata Gakuen-machi, Akita-shi

7. Prior Consultation for Applicants with Disabilities

Applicants with physical or mental disabilities, such as health issues, injury, or developmental disabilities, who may require special consideration in either the examination process or the course of study itself should contact the Admissions Office before application no later than November 11, 2024, submitting the form designated by the Graduate School with all required fields completed together with a medical certificate prepared by a doctor. If special consideration is required during the examination process, for example, when an applicant would like to make use of a hearing aid, crutches, wheelchair, or similar device used on an everyday basis, or when such needs arise following application due to accident or other contingency, contact the Admissions Office immediately.

Depending on the severity of the disability, special arrangements may be required in advance. If you are unsure whether to apply to Akita University because of your condition, contact the Admissions Office. Please inform us if special arrangements are no longer required due to the selection of an alternate institution or other reason.

Note that details of prior consultation will in no way influence judgment when determining acceptance to the Graduate School.

Contact: Admissions Office, Akita University
Tel: +81-18-889-2313
E-mail: nyushi@jimu.akita-u.ac.jp

8. Acceptance Notification

The examination numbers of successful applicants will be posted on the Akita University website at **3:00 p.m. on January 14, 2025**, and successful applicants will be sent a letter of acceptance and documents with regard to the procedure of enrollment.

Be sure to check the acceptance letter, as posting the results on our website is part of our information service.

Please note that we are unable to respond to telephone inquiries on the examination results.

9. Admission Procedures

We will mail forms of admission documents to successful applicants. Please pay the enrollment fee during the admission procedure period listed below and submit the admission documents. We will notify the prospected students of the information on tuition payment and other matters in mid - February 2025.

(1) Admission procedure period

From January 20, 2025 to no later than January 29, 2025

(2) School fees

i) Enrollment fee: 282,000 yen (subject to change)

However, this payment is not required for those who will complete the Master's

Program of the Akita University Graduate School in March 2025 and will continue on to the Doctor's Program.

ii) Tuition: 267,900 yen for the first semester (535,800 yen for the full academic year) (subject to change)

Note 1) The enrollment fee paid will not be refunded for any reason.

Note 2) The tuition and enrollment fee are projected amounts. If the amount of enrollment fee is changed before the time of admission, the new amount will apply to all applicants from the time of the revision. If the tuition is revised at the time of admission or during the course of study, the new tuition takes effect at the time of revision.

Note 3) If a prospected student cancels his/her admission before March 31, 2025 after completion of the admission procedures due to unavoidable circumstances, the tuition paid will be refunded upon request after the designated procedures are completed.

(3) Other

i) Upon screening, those who have outstanding academic achievements and have difficulty in paying the enrollment fee due to financial difficulties, or those who are in other special circumstances, will be either exempt from paying all or half of the fee, or may be allowed to pay the fee at a later date.

ii) Upon screening, those who have outstanding academic achievements and have difficulty in paying the tuition due to financial difficulties, or those who are in other special circumstances, will be either exempt from paying all, half, or one-third of the tuition, or may be allowed to pay the tuition at a later date.

iii) There is a system available for scholarship from the Japan Student Services Organization (JASSO) (except for international students).

iv) If the prospected student is employed as a teaching assistant (TA) or research assistant (RA), a stipend will be paid.

10. Other

(1) Be sure to bring your Examination Admission Slip with you on the day of examination.

(2) Direct any inquiries related to the admission process to the contact listed below.

(3) Akita University has established the University's Rules on Security Export Control in accordance with the Foreign Exchange and Foreign Trade Act, and is applying the Rules in determining the admission of international students, etc. Note that international applicants may not be able to obtain their desired education or to conduct their desired research due to the restrictions imposed by the above rules.

Contact: Admissions Office, Akita University
1-1, Tegata Gakuen-machi, Akita-shi, 010-8502, Japan
Tel: +81-18-889-2313

Approval of the Application Eligibility Requirements (5) and (6)

1. The scope of the **"persons designated by the Minister of Education, Culture, Sports, Science and Technology,"** as stipulated in the application eligibility requirement (5), is those who meet the following requirement.

> Those who have been engaged in research at a university or research institute for two or more years after graduation, and who are recognized by the Graduate School as having academic ability at or above the level of a master's degree, as judged by the achievements of such research.

2. The scope of the "persons recognized by the Graduate School, on the basis of an individual screening for admission, as having academic ability at or above the level of a master's degree, and who will be at least 24 years of age by March 31, 2025," as stipulated in the application eligibility requirement (6), is those who meet the following requirement.

> Persons who have graduated from a junior college or higher technical school, or who have completed programs at other educational institutions, and who will be at least 24 years of age by March 31, 2025, and whose research achievements in books, academic papers, academic lectures, academic reports, patents, etc. are deemed to be of equal or greater value than a master's degree thesis; or persons who have at least two years of work experience in science- and technology-related fields after graduation from a university, and whose research achievements in books, academic papers, academic lectures, academic reports, patents, etc. are deemed to be of equal or greater value than a master's degree thesis.

3. Applicants who wish to apply according to the requirement (5) or (6) are required to submit the **Pre-evaluation Request for Application Qualification** (included in these Guidelines) and the **Academic Record for Approval of Application Qualification** (included in these Guidelines) together with the **Research Achievement Record** (included in these Guidelines), **Graduation (Completion) Certificate,** and **Reprints of Papers, etc.** to the Admissions Office between **October 21 and October 25, 2024 (must arrive by this date).** In the case of a mail-in application, **the mail must be received no later than 4:00 p.m. (Japan time) on October 25, 2024.**

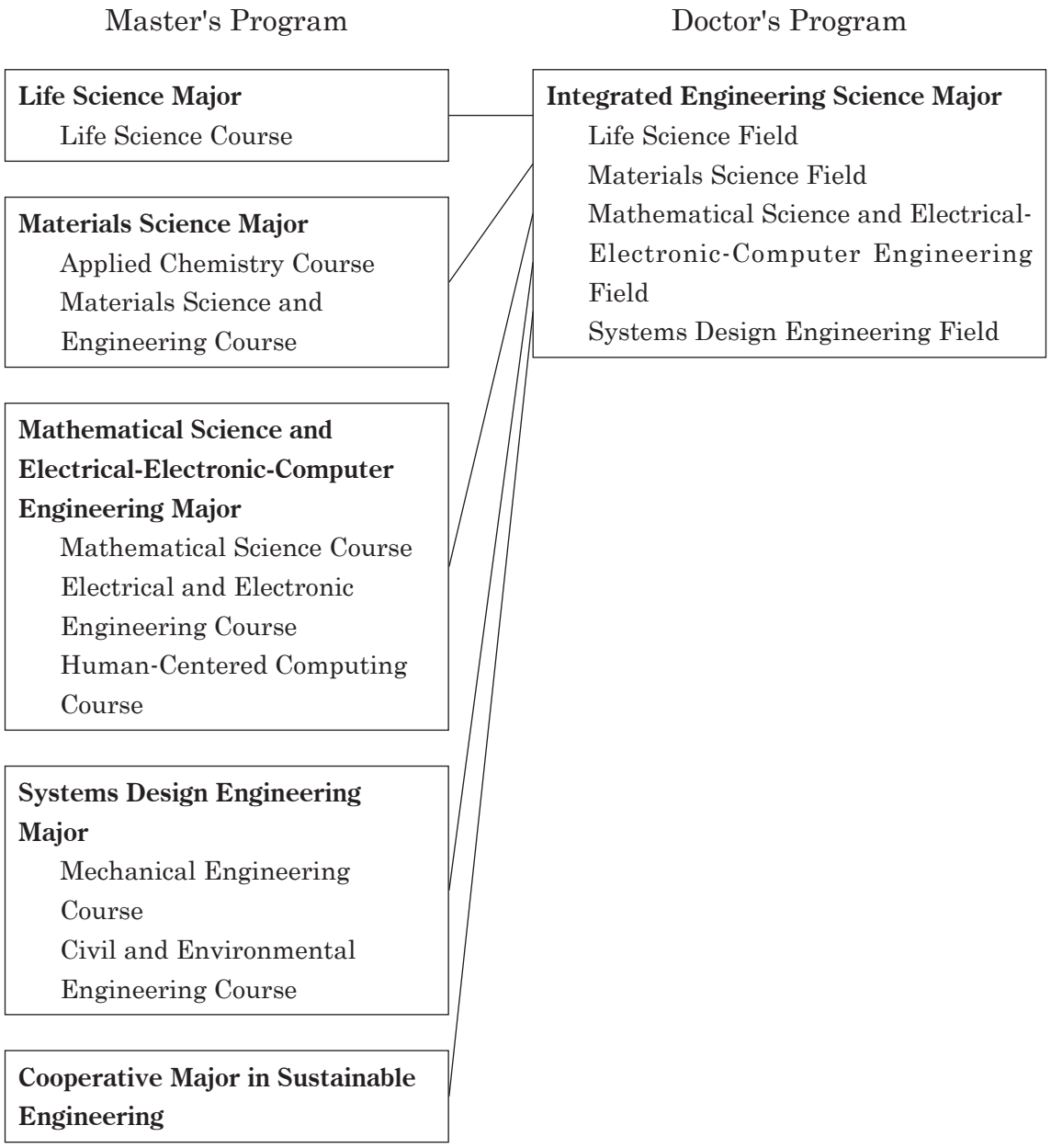
4. Applicants will be personally informed of the results of the application eligibility screening by **November 8, 2024.**

5. Applicants who have been approved as eligible for application should follow the prescribed application procedures.

Outline of the Graduate School of Engineering Science

(1) Organization of the Graduate School

The Graduate School of Engineering Science has an integrated doctoral program founded on the Faculty of Engineering Science. The program is divided into the first two-year program and the second three-year program, and the latter is treated as the Doctor's Program. The Doctor's Program has the Integrated Engineering Science Major as the only major, which covers the following four fields: **Life Science, Materials Science, Mathematical Science and Electrical - Electronic-Computer Engineering,** and **Systems Design Engineering.**



(2) Majors and fields

[Integrated Engineering Science Major]

The Integrated Engineering Science Major aims to train advanced engineers or independent advanced researchers and educational leaders who have, as a basis, advanced knowledge in specialized fields such as life science, materials science, mathematical science and electrical-electronic-computer engineering, and systems design engineering and have broad knowledge in other specialized fields, and who can accurately grasp social needs and contribute to society as leaders. This major consists of four fields: Life Science, Mathematical Science and Electrical-Electronic-Computer Engineering, Materials Science, and Systems Design Engineering.

≪Life Science Field≫

Research achievements in the life sciences, such as the sequencing of the human genome and the discovery of iPS cells, have served as turning points for the development of many new scientific technologies, and it can be said that the life sciences are a discipline that will open up the future of human society. Among the various fields of fundamental chemistry, the life science field is playing an increasingly significant role in solving important problems that have traditionally been regarded as the mysteries of life.

With the development of science and technology, the relationship between the life sciences and other disciplines has become increasingly close, and new integrated and collaborative research fields are emerging one after another. In order to respond to these social conditions and needs, the Life Science Field fosters human resources who have an understanding of the characteristics of Japan as a whole and its regions, have an international perspective, and have the ability to promote research and development based on deepened expertise and professional skills in life science-related fields, while observing social obligations and ethical standards as engineers and researchers, and who can promote fusion with other research fields and the development of new research fields beyond the boundaries of their own specialties.

≪Materials Science Field≫

While human society has undergone unprecedented change and development in the 20th century due to dramatic advances in science and technology, environmental degradation has become increasingly severe on a global scale since the end of the same century. As we have entered the 21st century, advanced science and low-impact technologies that balance the richness of modern life with the preservation of the environment have become more important than ever.

To meet the demands of society, we must open up the field of materials science by understanding the properties of materials from the atomic, molecular, and electronic levels, and by exploiting their full potential to create new materials and functions.

To this end, it is necessary to focus on developing human resources with broad and

rich expertise in materials science, transcending the boundaries of conventional academic disciplines such as science, engineering, physics, and chemistry. In addition, with the emergence of nanoscience and nanotechnology since the 1990s, there is an international demand for materials scientists who are grounded in a new scientific and engineering foundation that bridges traditional disciplines and who have an overview of a wide range of fields and domains, including boundary areas. To respond to this vision of human resource development, the Materials Science Field aims to develop human resources who can communicate their knowledge to society in an easily understandable manner, based on a comprehensive understanding and awareness of the mechanisms of nature and the properties of materials, and who have the ability and high ethical standards to apply and extend their knowledge for the sustainable development of human society.

1) Applied Chemistry: We promote cutting-edge education and research to understand the mechanisms underlying the properties and functions of materials based on chemistry, including the design and analysis of materials at the atomic and molecular levels, to develop technologies for the creation and use of materials with a strong awareness of environmental conservation and safety, and to construct sustainable chemical processes. We also conduct education and research through academic projects to develop human resources with a broad perspective who seek harmony between the global environment and science and technology.
2) Materials Science and Engineering: We conduct education and research on the provision and control of physical, chemical, and mechanical properties to various materials and on the evaluation of their functionality in order to develop new materials with new functions, and to improve the performance of already developed materials and develop efficient manufacturing processes for them. We also teach and research rational development and manufacturing methods and process design for materials having the required functionality.

≪Mathematical Science and Electrical-Electronic-Computer Engineering Field≫

With the aging of society, it is necessary to create new technologies and values, and use information and communication technology (ICT) to solve the problems of rural areas.

The objective of this Field is to develop human resources with interdisciplinary and advanced expertise by building an education and research system that encompasses basic mathematical and physical science areas and cutting-edge technology areas in electrical-electronic-computer engineering.

1) Mathematical Science: The ability to think abstractly and to have mathematical or physical intuition are qualities that are unique to those who have studied mathematics, theoretical physics, computer science, and other fields of mathematical sciences. In today's society, where the amount of information transmitted daily is rapidly increasing and the complexity of information is rapidly growing, it is expected that the demand for these qualities will increase in various fields. In the mathematical science area, we conduct education and research to improve problem-

solving skills from a mathematical science point of view by allowing students to study more advanced content on the methods of constructing mathematical structures and physical models as well as analytical and computational techniques that are indispensable for constructing fundamental theories in various fields of science and engineering, assuming that the students have mastered the Mathematical Science Course of the Master's Program or equivalent.

2) Electrical and Electronic Engineering: The current information society is supported by electrical energy infrastructure, electronic products incorporating optical and electronic devices such as liquid crystals and LSI chips, information communication networks including optical fibers and cell phones, and control systems required for various large-scale systems and robots. We conduct education and research to develop human resources who can absorb at a deep level the essence of advanced technologies in these specialized fields related to electrical and electronic engineering, and who can contribute to solving global issues, such as energy and environmental problems, and regional issues, such as aging population and local development.

3) Human-Centered Computing: To achieve human-computer cooperation using ICT, it is necessary to have (1) a deep understanding of human information processing mechanisms and technologies that take advantage of them, (2) advanced sensing technologies that enable the acquisition of desired information, (3) human-centered design principles for the deployment of ICT infrastructure in real space, (4) technologies to realize safe and secure networks by appropriately conveying information, (5) security technologies that take into account human characteristics and the development of systems that use such technologies, and (6) human-centered computer software and hardware design technologies. In the field of Human-Centered Computing, we conduct education and research in the following and other areas: Advanced Sensory Information Engineering for the development of psychophysical methods and the testing and support systems for investigating perceptual and motor functions, including brain functions; Advanced Remote Sensing Engineering for the analysis of remote sensing data, algorithm development, and image recognition and application; Advanced Spatial Informatics for design systemization of ubiquitous ICT environments and analysis of user behavior logs and observation data; Advanced Information Communication Networks for network design and the development of optimization methods and IOT network system configuration technology; Advanced Security Systems for the development of human error prevention and image data protection technology; and Advanced Software Systems for the development of remote support systems and VR simulators.

≪Systems Design Engineering Field≫

The key to Japan's rapid economic growth in a brief post-war period was largely due to the nation's outstanding ability in manufacturing techniques and establishment of production infrastructure. However, there is an urgent need to take short- and long-term measures to ensure the sustainable development of society in the future, such as

responding to the aging society with declining birthrate and the ongoing information technology revolution, securing energy on a global scale, and building a recycling-oriented social infrastructure to protect the global and regional environment.

This field aims to integrate and harmonize various fields such as mechanical engineering, electrical and electronic engineering, and civil and environmental engineering, with the goal of making products to create a sustainable society, creating new industries, and improving the infrastructure of life to deal with these issues. It also aims to help solve local problems and contribute from local areas to the world, keeping in mind the need to build a sustainable society that develops creatively, while taking into account the global environment. To achieve this goal, we have two fields of study: Mechanical Engineering and Civil and Environmental Engineering. The Mechanical Engineering field focuses on sustainable and environmentally compatible systems engineering, including aerospace systems for efficient and lightweight next-generation vehicles, medical-engineering systems for an aging society, and thermo-fluid technologies for renewable energy use. The Civil and Environmental Engineering field aims to build and maintain social infrastructures that enable everyone to live and engage in productive activities in cities and regions where the population is aging with declining birthrate, while giving due consideration to disaster mitigation and prevention as well as environmental preservation.

1) Mechanical Engineering: We conduct education and research in three fields: medical systems engineering related to the development of healthcare and medical devices to support a superaging society; aerospace systems related to the electrification and improved efficiency of next-generation mobile vehicles, including aircraft and automobiles; and environmentally compatible systems related to the effective use of renewable energy.
2) Civil and Environmental Engineering: We conduct education and research mainly in the fields of structural engineering, geotechnical engineering, hydraulic engineering, urban and transportation engineering, and concrete engineering, with an emphasis on advanced research and technological development that integrates these fields, in order to build and maintain a social infrastructure that is in harmony with the environment, resistant to disasters, and allows all people to live safely and with peace of mind.

(3) Education and research areas, instructor names, and course subjects (as of April 2024)

Field	Life Science		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Life Science	Structural biology of enzyme reaction mechanisms, biochemical characterization, and medical and/or industrial applications of protein nanocompartments	Prof. Masafumi Odaka	Bioanalytical Science I, II
	Synthetic chemistry of biologically active natural products. Studies of structure-activity relationship of cytotoxic natural products	Prof. Kenshu Fujiwara [28]	Synthetic Natural Products Chemistry I, II
	Computational design of photofunctional molecular devices	Associate Prof. Yoshiaki Amatatsu [25]	Computational Chemistry for Molecular Design I, II
	Studies on synthesis and characterization of new functional materials based on macrocyclic compounds	Associate Prof. Yoshihiko Kondo	Supramolecular Chemistry for Biology I, II
	Spectroscopic studies on functional mechanism of metalloproteins for industrial and agricultual applications	Associate Prof. Hirotoshi Matsumura	Spectroscopy and Analytical Chemistry I, II
	Study of morecular maturation and quality control of proteins in living cells. Toxicity of aggregation prone proteins in neurodegenerative disease	Prof. Hiroshi Kubota [28]	Molecular Cell Biology I, II
	Studies on immune responses based on molecular cell physiology	Prof. Masaki Hikida	Molecular Cell Regulation Science I, II
	Principles of tissue and organ formation	Prof. Masakazu Yamazaki	Tissue and Organ Formation I, II
	Neuroscience of likes and dislikes	Associate Prof. Nobuhiro Yamagata	Behavioral Genetics I, II

Note: [25] and [28] indicate faculty members scheduled to retire in March 2025 and March 2028, respectively.

Field	Materials Science		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Applied Chemistry	Design and preparation of organic functional materials for target functions development and evaluation of organic functional materials for target functions	Prof. Mitsutoshi Jikei	Organic Functional Materials I, II
	Design and development of functional polymers with controlled structures	Associate Prof. Kazuya Matsumoto	Functional Polymer Chemistry I, II
	Design and development of supramolecules by assembling molecules via intra and inter-molecular interactions	Associate Prof. Manabu Yamada	Functional Supramolecular Chemistry I, II
	Development of conversion process of carbon resources to energy and high functional materials	Prof. Kenji Murakami	Carbon Resource Processing I, II
	Design and characterization of inorganic functional materials such as catalytic materials and ceramics	Prof. Sumio Kato	Functional Inorganic Materials I, II
	Chemical characterization and functional design of structural controlled metal oxides such as porous and layered materials	Associate Prof. Masataka Ogasawara	Inorganic Solid-State Materials Chemistry I, II
	Design and development of chemical processes	Associate Prof. Hiroshi Takahashi [28]	Advanced Chemical Process Design I, II
	Design of electrochemical reaction process and development of battery materials	Prof. Hirokazu Okawa	Electrochemical Process I, II
	Bioprocess design and development by integrating biological and biochemical technologies, and creation and application of new functional biomaterials	Prof. Takeshi Gotoh [26]	Bioprocess Engineering I, II

Note: [26] and [28] indicate faculty members scheduled to retire in March 2026 and March 2028, respectively.

Field	Materials Science		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Materials Science and Engineering	Research and education on the structural analysis of materials and the development of structural and functional materials by microstructure control	Prof. Kaichi Saito	Electron Crystallography I, II
	Occurrence of high performance in inorganic materials by synergetic structural control via powder processes	Prof. Shigeo Hayashi [28]	Advanced Design of Inorganic Materials I, II
	Research and education on modeling and simulation for microstructure to evaluate physical properties of structural materials	Prof. Yukinobu Natsume	Physical Properties of Structural Materials I, II
	Research and education on the atomic structure and physical properties of metals and alloys	Associate Prof. Yeong-Gi So	Advanced Metal Physics I, II
	Research and education on functional magnetic materials and their applications	Associate Prof. Takashi Hasegawa	Physics and Application of Magnetic Materials I, II
	Fabrication and characterization of solid materials for optical applications	Associate Prof. Naoki Kawano	Advanced Optical Functional Materials I, II
	Research and Education on constitutive modeling of viscoplastic deformation for evaluating the strength reliability of mechanical structures	Prof. Ken-ichi Ohguchi	Applied Mechanics of Elasto-Plastic Materials I, II
	Fabrication and evaluation of thin film materials and their appplication to advanced electronic devices	Prof. Satoru Yoshimura	Advanced Magnetic Thin Films I, II
	Mechanisms of ceramic-ceramic and ceramic-metal reactions and their control	Associate Prof. Akihiro Nino	Inorganic Structural Materials I, II
	Properties and applications of electrochemical devices	Associate Prof. Michihisa Fukumoto	Interface Controlling Technology I, II
	Research and education on high-performance materials by solidification processes and optimum solidification control using simulation technique	Associate Prof. Ikuzo Goto	Solidification Process Engineering I, II
	Research and education of materials for electrode catalyst	Associate Prof. Hiroki Takahashi	Physical Chemistry of Electrode I, II
	Education and research of designing for chemical reaction of non-organic materials and estimation of properties	Associate Prof. Yoshiyuki Sato	Design of Reaction for High Temperature Materials I, II

Note: [28] indicates faculty members scheduled to retire in March 2028.

Field	**Mathematical Science and Electrical-Electronic-Computer Engineering**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Mathematical Science	Algorithms in algebraic structures and applications to information security and cryptography	Prof. Akihiro Yamamura [28]	Advanced Algebra VII, VIII
	Automata theory and combinatorics of strings	Associate Prof. Szilard Fazekas	Advanced Discrete Mathematics III, IV
	Probability theory, linear differential equations, and related inverse problems	Prof. Hajime Kawakami [26]	Advanced Analysis VII, VIII
	Theory of mappings for shape detection	Associate Prof. Mahito Kobayashi	Advanced Geometry V, VI
	Transport theory and its applications in electronic and electromagnetic wave propagation	Prof. Masaru Onoda	Quantum Transport Theory I, II
	Theory of superconductivity phenomenon and anisotropic superconductivity and its applications	Associate Prof. Yasunari Tanuma	Advanced Physics of Superconductors I, II
	Experimental and theoretical studies on high-temperature physical properties of molten oxides	Assoicate Prof. Toru Sugawara	Advanced High-Temperature Physical Properties I, II
	Research of mass transfer and chemical reaction in the earth environmental system utilizing advanced analytical techniques	Associate Prof. Mayuko Fukuyama	Earth Environmental System I, II
Electrical and Electronic Engineering	Development and analysis of devices and materials for electric power	Prof. Seiji Kumagai	Power Device and Materials Engineering I, II
	Analysis and application of electromagnetic wave on non-destructive test methods for living bodies	Assoicate Prof. Mahmudul Kabir	Advanced Bio Electromagnetic Engineering I, II
	Application, control and design of power stationary apparatus and rotating machine	Prof. Katsubumi Tajima	Advanced Machinery Engineering for Electromagnetic Energy Conversion I, II
	Application of artificial-intelligence type algorithms like neural networks and genetic algorithms for control systems	Associate Prof. Takeshi Miura	Intelligent Electronic Control System Engineering I, II
	Education and research on the analysis and design of magnetic devices in electric drive systems	Associate Prof. Yukihiro Yoshida	Electrical Machine Modeling and Analysis I, II
	Structure and magnetic properties of advanced magnetic materials and their evaluation methods	Prof. Hitoshi Saito [25]	Magnetic Materials I, II
	Organic molecular orientation and their application to optoelectronic devices	Prof. Rumiko Yamaguchi [27]	Organic Photo-functional Material and Device I, II
	Clarification and application of optical and electronic materials and their applications to optoelectronic devices	Prof. Marenori Kawamura	Photonic and Electronic Device Engineering I, II
	Education and research on the analysis and development of magnetic functionalities	Prof. Nobuaki Kikuchi	Advanced Magnetic Engineering I, II
	Various types of compound semiconductor crystal growth and their applications to electronic devices	Associate Prof. Yuichi Sato [28]	Semiconductor Material and Device Engineering I, II
	Signal processing for information communication systems and numerical modeling on signal transmission, and their applications	Associate Prof. Motoshi Tanaka	Advanced Signal Processing System Engineering I, II

Note: [25], [26], [27] and [28] indicate faculty members scheduled to retire in March 2025, March 2026, March 2027, and March 2028, respectively.

Human-Centered Computing	Biomedical measurements of sensory motor systems and development of supportive devices for older people and traffic accident prevention	Prof. Kazutaka Mitobe	Advanced Sensory Information Engineering I, II
	Design of software systems for remote support and collaboration, and development of VR simulators and measuring systems for sensorimotor and cognitive tests	Prof. Katsuya Fujiwara	Advanced Software Systems I, II
	Analysis and algorithms of remote sensing data, image recoginition and image information applications	Prof. Yoichi Kageyama	Advanced Remote Sensing Engineering I, II
	Human error prevention technologies and image data protection technologies	Prof. Chikako Ishizawa	Advanced Security Systems I, II
	Design, development and analysis of human-centered ubiquitous computing environments based on spatial informatics	Prof. Masatoshi Arikawa [28]	Advanced Spatial Informatics I, II
	Study on network design and optimization for information networks and IoT networks systems	Associate Prof. Masashi Hashimoto [25]	Advanced Information and Communication Network Engineering I, II

Note: [25] and [28] indicate faculty members scheduled to retire in March 2025 and March 2028, respectively.

Field	Systems Design Engineering		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Mechanical Engineering	Scanning probe microscopy for characterization of micro/nano materials	Prof. Mikio Muraoka [26]	Advanced Engineering of Micro/Nano Materials
	Raman spectroscopic characterization and fabrication of subsurface structure	Associate Prof. Makoto Yamaguchi	Characterization of Subsurface Structure
	Design method and its application of the advanced control system and the adaptive control system	Prof. Akihiro Naganawa	Advanced Control of Mechanical Systems
	The education and research on the elucidation of a physical movement mechanism and the application to its medical treatment and welfare field	Prof. Takehiro Iwami	Biomedical Engineering
	Experimental investigations of nanostructured magnetic materials	Associate Prof. Yoshiyuki Yamamoto	Nano Magnetic Materials and Devices
	Design of the measurement system at the micrometer to nanometer domain	Prof. Eiki Okuyama [26]	Ultraprecision Measurement System
	Advanced industrial technology and science for material production, processing and utilization	Associate Prof. Yasuyuki Miyano	Advanced Functional Materials Science
	Basic theoretical instruction and investigation for heat and mass transfer associated with phase change used for low temperature thermal energy storage systems	Associate Prof. Yoshimi Komatsu	Low Temperature Thermal Energy Storage Engineering
	Heat transfer enhancement caused by flow instability and its application	Prof. Takahiro Adachi	Heat Transfer Enhancement
	Fluid mechanics in blood vessel and its control	Associate Prof. Takeshi Akinaga	Biological fluid Engineering
	Ecodesign and eco-efficiency analysys of manufacturing processes, products, product-service systems, businesses, and social systems	Prof. Nozomu Mishima [28]	Special Theory on Systems Ecodesign
	Machining technology for improvement of engineering materials surface and evaluation of mechanical properties of improved surface	Associate Prof. Mamoru Takahashi	Advanced Surface Processing Engineering
	Energy management for diverse temporal and spatial scales	Associate Prof. Takaaki Furubayashi	Special Theory on Energy Management

Note: [26] and [28] indicate faculty members scheduled to retire in March 2026 and March 2028, respectively.

Field	Systems Design Engineering		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Civil and Environmental Engineering	Mechanics and numerical analysis of composite structures	Prof. Humihiko Gotou	Numerical Analysis
	Measurements and numerical modeling of natural phenomenon in water area	Associate Prof. Kazuya Watanabe	Advanced Computational Hydraulics
	Settlement and failure of soft soil ground	Associate Prof. Toshihiro Ogino	Systematical Geotechnical Engineering
	Design of an urban and regional transportation system	Prof. Hidekatsu Hamaoka	Regional Transport Engineering
	Design of an urban transportation system and a welfare city	Associate Prof. Satoru Hino	Regional and Infrastructure Planning
	Construction materials including concrete polymer composites, and advanced materials	Prof. Hidenobu Tokushige	Advanced Construction Materials

(4) Certification of program completion and awarding of degree

The completion of the Doctor's program will be certified and a Doctor's degree (Science, Engineering Science, or Engineering) will be awarded when the student has met the following requirements: enrolled in the program for at least three years, earned at least 12 credits required for the completion of the program as stipulated in the "Credits Required for the Completion of the Doctor's Program" in the table below, received the required research supervision, and passed the doctoral thesis defense and final examination.

However, for those who have made outstanding research achievements, it is sufficient to study for a total of at least three years in the Master's and Doctor's Programs combined.

For those who are admitted under any of the eligibility requirements (2) through (6), it is sufficient to enroll in the Doctor's Program for at least one year if they have made outstanding research achievements.

Credits Required for the Completion of the Doctor's Program

Subject Category	Credits Required	Remarks
Common Subjects	8 credits (mandatory)	
Common Subjects and Specialized Subjects	4 credits or more (elective)	
Total	12 credits or more	

(5) Long-term enrollment system

In the Master's and Doctor's Programs, a long-term enrollment system is provided for the convenience of students who have occupations. Those who wish to use this system may take the necessary procedures prior to enrollment and systematically complete the course of study for a certain period beyond the standard length of study (two years for the Master's Program and three years for the Doctor's Program). The duration of long-term enrollment may be changed if approved by the Dean of the Graduate School. This system provides a supportive environment in which you can focus on your research.

2025 April (Spring) Admission

Doctoral Courses
Graduate School of Engineering Science, Akita University
Application for Admission

【Additional Application】

Special Applications	1. General Exam 2. Special Exam for Working People 3. Special Exam for International Students Circle the option that applies	Application No.	※
Admission Category	2025 April Admission		
Desired Field			
Desired Supervisor			
Name of Applicant Date of Birth	_____ month day year	Sex	Male / Female
Educational History	Undergraduate Level Name of School: Major: Date of Graduation: Postgraduate Level Name of School: Course/Major: Date of Completion:		
Current Employment	Name of Employer Address: _____ Tel.: postal code country		
Current Address	Address: _____ Tel.: postal code country		
Contact Address	Address: _____ Tel.: postal code country Mail address:		

Note:
1. ※ Official use only.
2. Please use BLOCK LETTERS and BLACK INK. Do not use erasable ink.
3. Contact Address is where applicant wishes to receive correspondence.
4. Detailed information is requested in the Curriculum Vitae (reverse side).

Curriculum Vitae

Education Japanese nationals List high school first. Enter research experience also. Overseas students List all educational institutions starting with elementary school.	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
Employment	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
Qualifications and Licenses	Date:		
	Date:		
	Date:		
Achievements	Date:		
	Date:		

Doctoral Course
2025 April(Spring) Admission
Graduate School of Engineering Science, Akita University

Examination Admission Slip

【Additional Application】

Application Category Circle the option that applies	1. General Exam 2. Special Exam for Working People 3. Special Exam for International Students
Admission Category	2025 April Admission
Application Number	※
Name	
Desired Field	

For inquiries, contact:
Admissions Office Akita University
1−1, Tegata Gakuen-machi Akita-shi 010−8502 Japan
Tel: +81−18−889−2313

Doctoral Course
2025 April(Spring) Admission
Graduate School of Engineering Science, Akita University

Photo ID Card

【Additional Application】

Application Category Circle the option that applies	1. General Exam 2. Special Exam for Working People 3. Special Exam for International Students
Admission Category	2025 April Admission
Application Number	※
Name	
Desired Field	

Please paste ID photo
（4.5cm×3.5cm）

[Additional Application]

Abstract of Master's Thesis（No. 1）

Graduate School of Engineering Science, Akita University

Application No.	※	Name		Graduate School Attended	Name: Date attended: Course: Completed / Prospective Completion
Desired Field				Desired Supervisor	
Master's Thesis Title					

Abstract should be in 500 words or less.

[Additional Application]

Abstract of Master's Thesis (No. 2)

Graduate School of Engineering Science, Akita University

Application No.	※	Name		Desired Field	
				Desired Supervisor	

Abstract should be in 500 words or less.

[Additional Application]

Research Plan

Graduate School of Engineering Science, Akita University

Application No.	※	Name		Desired Field	
				Desired Supervisor	

Research Plan should be in 300 words or less.

[Additional Application]

Intended for Applicants for the Special Entrance Examination for Working People

Application No.	※

※Official use only

Permission to Take Examination and Consent to Study

To the President of Akita University

Name

Date of Birth　Month/Day/Year:

We authorize the above-named person to take the entrance examination (Special Entrance Examination for Working People) for admission to the Doctor's Program of the Graduate School of Engineering Science, Akita University, beginning in April, 2025.

If the above-named person is admitted to said Graduate School of Engineering Science, we agree that he/she may continue to study at said Graduate School of Engineering Science while still holding his/her current position.

Month/Day/Year:

Address

Institution / Department

Head of Department　(Signature)

[Additional Application]

For applicant currently enrolled in a doctoral course at other graduate school.

Application No.	※

※Official use only

Application Permission

To the Dean
of the Graduate School of Engineering Science, Akita University

Name: _____

Date of Birth: _____
month day year

I hereby give permission for the above applicant to apply for the 2025 Spring Doctoral Course offered by the Graduate School of Engineering Science, Akita University.

Name: _____

Signature: _____

Title: _____

School Name: _____

Address: _____

Date: _____
month day year

[Additional Application]

Record of Academic Achievements (No. 1)

Graduate School of Engineering Science, Akita University

Application No.	※1	Name		Desired Field	
				Desired Supervisor	
Title of Master's Thesis		※2			

Record of Employment	Period of Employment	Name of Employer	Description of Work

Description of past work related to research (300 words or less)

※1 Official use only.
※2 Title of Master's Thesis is not required if the applicant has not written a thesis.

[Additional Application]

Record of Academic Achievements (No. 2)

Graduate School of Engineering Science, Akita University

Application No.	※	Name		Desired Field	
				Desired Supervisor	

Titles of papers, presentations, reports, patents, etc.	Date, volume, etc.	Name of publisher, journal, conference, etc.	Other (Co-author or co-presenter)

Note:1. Enter the information in chronological order.
2. Copies of academic papers are required.
3. ※ Office use only.

[Additional Application]

For Application under Application Qualification (5) or (6)

Pre-evaluation Request for Application Qualification

I intend to apply for the 2025 Spring Doctoral Course offered by Akita University, Graduate School of Engineering Science under the ※requirement (5) or (6) of the Application Qualification. I hereby request for the Pre-evaluation of Application Qualification.

※Circle (5) or (6), whichever is applicable

Name of Applicant: _____

Signature: _____

Date: _____
month day year

Address: _____

Tel. Number: _____

Mail address: _____

Desired Field: _____

Last School Graduated from: _____
(Enter names of faculty and course.)

Date of Graduation: _____
month day year

Present Position: _____
(Enter organization, department, and title.)

[Additional Application]

2025 April (Spring) Admission

Doctoral Courses

Graduate School of Engineering Science, Akita University

Academic Record for Approval of Application Qualification

Admission Category	2025 April Admission		
Application Number	※		
Name		Date of Birth	
Desired Field			
Desired Supervisor			
Present Employment			

Academic History (begin with high school)	
Date mm/dd/yy	(Names of school, major, diplomas or degrees awarded)

Employment History	
Date mm/dd/yy	(Names of employers and titles)

Community and/or Academic Society Activities	
Date mm/dd/yy	(Please give details)

Note: 1. Please attach Record of Academic Achivements.
2. ※ Official use only.

Prior Consultation Form for Applicants Who Need Consideration in Taking the Examination and Studying

Month/Day/Year:

<table>
<tr><td>Test category</td><td colspan="2">General Exam / Special Exam for Working People /
Special Exam for International Students</td></tr>
<tr><td>Desired field, etc.</td><td colspan="2">Integrated Engineering Science Major
Field
Area</td></tr>
<tr><td>Name
(Age)</td><td colspan="2">(Age:)</td></tr>
<tr><td>Contact</td><td colspan="2">E-mail: Phone:</td></tr>
<tr><td colspan="3">Type and degree of disability, etc.

※ Be sure to attach a doctor's note or other documentation that shows the status of your disability.</td></tr>
<tr><td colspan="3">Requests for consideration in taking the examination</td></tr>
<tr><td colspan="3">Requests for consideration in studying

※ After admission is confirmed, the Student Support Office may contact you regarding the details of your consultation.</td></tr>
<tr><td colspan="3">Special measures taken at your current/previous school, etc.</td></tr>
<tr><td colspan="3">Daily living conditions</td></tr>
<tr><td rowspan="2">Current/previous school, etc.</td><td>Name of school, etc.</td><td></td></tr>
<tr><td>Address and phone number</td><td>Postal code:
Phone:</td></tr>
</table>

[Additional Application]

Return Contact Label Slip

The Label Slip below will be used to address Notification of Acceptance and Documents for Admission Procedures, etc. to successful applicants. Please write your postal code, address, name, and other details clearly.

※ The Application Number field is for official use only

□□□-□□□□

Address:

Name:

Tel: – –

Desired Field, etc. Application Number※

Course : _____

□□□-□□□□

Address:

Name:

Tel: – –

Desired Field, etc. Application Number※

Course : _____